

ADDITIONAL NOTES ON THE ERIOCAULACEAE. XXVIII

Harold N. Moldenke

ERIOCAULACEAE Lindl.

Additional bibliography: Körn. in Miq., Prol. Fl. Iap. 326--328. 1867; Erdtman, Handb. Palyn. 102, 268, 269, & 477, pl. 28 (6). 1969; Kapp, How to Know Pollen 92 & 236, fig. 182. 1969; Moldenke, Phytologia 19: 320--351. 1970.

Erdtman (1969) says "This family, which belongs to the monocotyledons, has spirotreme pollen grains, i.e., the exine consists of one or more spiral pieces, held together by one or several, thin, leptoma- or colpus-like bands (membranes). Pollen grains of somewhat similar type occur, inter alia, in the west-Mediterranean liliaceous genus Aphyllanthes."

BLASTOCAULON RUPESTRE (Gardn.) Ruhl.

Additional synonymy: Paepalanthus rupestris Gardn. in Hook. f., Icon. Pl. 6 [new ser., 2]: pl. 525. 1843. Philodice rupestris Benth. & Hook. f. apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 223 & 292, in syn. 1903. Syngonanthus rupestris (Gardn.) Ruhl. ex Moldenke, Known Geogr. Distrib. Erioc. 59, in syn. 1946.

Additional bibliography: Moldenke, Phytologia 19: 322. 1970.

Bentham & Hooker (1883) do not actually make the combination in Philodice cited to them by Ruhland (1903). For their exact statement about this plant see under B. albidum in this series of notes.

ERIOCAULON Gron.

Additional synonymy: Euriocaulon C. Wright ex Sauv., Fl. Cub. 163, sphalm. 1871. Eriaucaulon Nees ex Usteri, Beitr. Kenntn. Philip. Veg. 131, sphalm. 1905.

Additional & emended bibliography: R. Br., Prodr. Fl. Nov. Holl., pr. 1, 1: 252--255 (1810) and pr. 2, [Isis 1819:] 47--48. 1819; Guill. in Deless., Icon. Pl. Sel. 3: 57--61 & 67, pl. 95--98. 1837; Benth. in Hook. f., Niger Fl. 547--548 & 582. 1849; Schweinf., Beitr. Fl. Aethiop. 295 & 309. 1867; Körn. in Miq., Prol. Fl. Iap. 326--328. 1867; Miq., Cat. Mus. Lugd. Bat. 108--109 & 146. 1870; Sauv., Fl. Cub. 161--163. 1871; Sauv., Anal. Acad. Ci. Habana 7: 715--717 (1871) and 8: 48--50. 1871; Hance, Journ. Bot. 16: 14. 1878; Benth. & Hook. f., Gen. Pl. 3 (2): 1020--1024, 1239, 1244, 1245, 1252, 1254, & 1255. 1883; Kuntze, Rev. Gen. Pl. 2: 745 & 746. 1891; Maxim., Diagn. Pl. Nov. Asiat. 8: 1--28. 1893; Ruhl. in Engl., Bot. Jahrb. 27: [65]--85. 1899; N. L. Britton, Man., pr. 1, 236--237, 1067, & 1078 (1901), pr. 2, 236--237, 1067, & 1078 (1902), and pr. 3, 236--237, 1067, & 1078. 1905; Usteri, Beitr. Kenntn. Philip. Veg. 131. 1905; N. L. Brit-

ton, Man., pr. 4, 236--237, 1067, & 1078. 1907; H. Lecomte, Journ. de Bot. 21 [ser. 2, 1]: 86--94, [101]--109, & [129]--136, fig. 1-3. 1908; Britton & Br., Illustr. Fl., ed. 2, pr. 1, 1: 453--456, [678], & 679, fig. 1140--1144 (1913) and 3: 575 & 625. 1913; H. N. Ridl., Fl. Mal. Penins. 5: 133--136, fig. 218. 1925; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 39--46, 48--50, 697, 698, 700, 701, 703, & 704. 1930; Britton & Br., Illustr. Fl., ed. 2, pr. 2, 1: 453--456, [678], & 679, fig. 1140--1144 (1936) and 3: 575 & 625. 1936; Moldenke in Lundell, Fl. Texas 3, pr. 1, 3--9. 1942; Britton & Br., Illustr. Fl., ed. 2, pr. 3, 1: 453--456, [678], & 679, fig. 1140--1144 (1943) and 3: 575 & 625. 1943; Moldenke, Alph. List Cit. 1: 3, 4, 6--8, 10--13, 15--19, 21, 23--25, 27--38, 40--43, 45, 46, 49, 55--57, 59--61, 63, 64, 71, 74, 79, 80, 82, 88--92, 94, 98, 99, 103, 104, 106, 107, 109, 111--113, 115--118, 120, 122--125, 128--130, 132, 137--140, 142, 143, 148, 149, 151--153, 160, 163--166, 169, 170, 174--178, 182, 186--188, 192--195, 197, 199, 200, 204--206, 209, 211--214, 220, 223--226, 229, 231, 234, 235, 239, 240, 242, 244, 245, 247--250, 253, 255, 257, 258, 261, 262, 268--271, 276--285, 287, 288, 290--296, 314, 321, 324, & 326. 1946; Britton & Br., Illustr. Fl., ed. 2, pr. 4, 1: 453--456, [678], & 679, fig. 1140--1144 (1947) and 3: 575 & 625. 1947; Moldenke, Alph. List Cit. 2: 333, 334, 351, 352, 358, 361, 365, 370, 389, 404--406, 409, 412, 413, 424, 429, 449, 453--457, 459--462, 473, 475--481, 490--494, 496, 506, 507, 511--514, 524, 526, 529, 530, 533, 536, 538--540, 543, 545, 548, 549, 554, 555, 558, 559, 568--570, 572, 576, 580, 581, 583, 585, 587, 588, 598, 604, 609, 610, 614, 617, 618, 625--627, 630--632, 634, 635, 638, 639, 641--643, 648, 650, & 651 (1948), 3: 656, 659, 660, 664, 668, 669, 671, 676, 697--702, 706, 707, 709, 713, 715, 718--722, 727, 728, 731, 732, 736, 738--745, 747, 749, 750, 752--756, 759, 760, 768, 771--778, 783--785, 788--790, 794, 800, 803, 805--807, 811--813, 815, 821--824, 827--832, 835, 840--843, 848--852, 855--859, 869--872, 876--880, 884, 890--892, 894, 898--900, 911, 916, 918, 925--927, 929--932, 936, 937, 939, 941--946, 948, 957--959, 961, 962, 964, 969, 971--973, & 975--977 (1949), and 4: 985--993, 997, 998, 1001--1004, 1011, 1012, 1014--1016, 1048, 1072, 1074--1079, 1081, 1084--1086, 1094, 1095, 1097--1099, 1102, 1105, 1107, 1111--1115, 1117--1119, 1121, 1123, 1125, 1127--1129, 1132--1138, 1140, 1141, 1143--1145, 1148, 1151, 1155, 1158, 1162, 1167--1171, 1173, 1175--1181, 1188, 1189, 1191, 1192, 1197--1206, 1209--1212, 1214, 1216--1218, 1220--1223, 1225--1227, 1229, 1231, 1232, 1235, 1237--1241, 1243, 1244, 1246, 1247, 1251, 1252, 1255, 1259--1261, 1277, 1288, 1289, 1291--1294, 1296, 1297, 1301, 1302, & 1304. 1949; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 115--204 & 263--271. 1955; F. Herman, Fl. Nord & Mitteleur. 215--216. 1956; Hedberg, Symb. Bot. Upsal. 15 (1): 60--61 & 263. 1957; Van Royen, Nov. Guin., new ser., 10: [21]--44, fig. 1--5 (1959) and 10: 236. 1960; G. S. Puri, Indian For. Ecol. 1: 293. 1960; Moldenke in Lundell, Fl. Texas 3, pr. 2, 3--9, 415, & 425. 1961; J. D. Montgomery, N. J. Nat. News 18: 122. 1963; Sandoval, Biol. Abstr. 46: 2128. 1965; Van Royen, Nov. Guin. Bot. 14: 467. 1965; Datta & Majumdar, Bull. Bot. Soc. Bengal 20: 38--39. 1966; Kral,

Sida 2: 290—312, 315, & 330. 1966; Tingle, Check List Hong Kong Pl. 54. 1967; Joseph & Vajravelu, Bull. Bot. Surv. India 9: 29. 1967; Ellis, Swaminathan, & Chandrabose, Bull. Bot. Surv. India 9: 15. 1967; S. K. Jain, Bull. Bot. Surv. India 9: 75 & 76. 1967; Rao & Kumari, Bull. Bot. Surv. India 9: 110. 1967; Sebastine & Vivekanathan, Bull. Bot. Surv. India 9: 165 & 183. 1967; Subba Rao & Kumari, Bull. Bot. Surv. India 9: 188—189. 1967; Sebastine & Ellis, Bull. Bot. Surv. India 9: 199. 1967; Kammathy, Rao, & Rao, Bull. Bot. Surv. India 9: 207 & 232—233. 1967; Panigr. & Saran, Bull. Bot. Surv. India 9: 260. 1967; M. Sharma, Agra Univ. Journ. Res. Sci. 16: 43—47. 1967; Wardlaw, Morphogen. 48 & 49, fig. F. 1968; Van Donselaar, Meded. Bot. Mus. Rijksuniv. Utrecht 306: 397 & 402. 1968; MacKeever, Native & Naturl. Pl. Nantucket 43. 1968; Arora, Bull. Bot. Surv. India 10: 65. 1968; Vajravelu, Joseph, & Chandr., Bull. Bot. Surv. India 10: 81. 1968; Inamdar, Bull. Bot. Surv. India 10: 131. 1968; J. L. Ellis, Bull. Bot. Surv. India 10: 159. 1968; Erdtman, Handb. Palyn. 268, 269, & 477, pl. 28 (6). 1969; Moldenke, Biol. Abstr. 50: 4449, 6336, 7436, & 7996. 1969; Anon., Biol. Abstr. 50: 8564 (1969) and 50 (12): BASIC S.69. 1969; Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Index 1968: 24—25. 1969; G. W. Prescott, How to Know Aquat. Pl. 133, 134, 137, & 164, fig. 146. 1969; Kapp, How to Know Pollen 92 & 236, fig. 182. 1969; M. A. Rau, Bull. Bot. Surv. India 10, Suppl. 2: 84. 1969; Lehr, Bull. Torr. Bot. Club 96: 721. 1969; Moldenke, Phytologia 19: 8—46 & 65—109 (1969) and 19: 230—250. 1970.

ERIOCAULON HONDOENSE Satake

Additional bibliography: Moldenke, Phytologia 19: 338. 1970.

Additional citations: WESTERN PACIFIC ISLANDS: JAPAN: Honshu: Ohwi & Koyama 1124 (N).

ERIOCAULON MONTANUM Van Royen

Additional bibliography: Moldenke, Phytologia 19: 65, 81, 84, 95, & 96. 1969.

Brass describes this species as "common in close masses on alpine seepage slopes" at 3680 meters altitude.

ERIOCAULON NEO-CALEDONICUM Schlecht.

Additional bibliography: Moldenke, Phytologia 19: 83 & 93. 1969; Erdtman, Handb. Palyn. 268 & 269, pl. 28 (6). 1969.

Illustrations: Erdtman, Handb. Palyn. 269, pl. 28 (6). 1969.

ERIOCAULON PELLUCIDUM Michx.

Additional bibliography: Kapp, How to Know Pollen 92 & 236, fig. 182. 1969; Moldenke, Phytologia 19: 350—351. 1970.

Additional illustrations: Kapp, How to Know Pollen 92, fig. 182. 1969.

The M. I. Moore s.n. [Deep River, August 23, 1963] cited in a previous installment of these notes as from "County undetermined" is actually from Renfrew County, Ontario.

ERIOCAULON PINARENSE Ruhl.

Additional bibliography: Moldenke, *Alph. List Cit.* 1: 64 & 188. 1946; Moldenke, *Phytologia* 18: 392—393. 1969.

ERIOCAULON PLUMALE subsp. KINDIAE (H. Lecomte) Meikle

Additional & emended bibliography: H. Lecomte, *Bull. Bot. Soc. France* 55: 646 & 647. 1909; Moldenke, *Phytologia* 19: 88. 1969.

ERIOCAULON PRINGLEI S. Wats.

Additional bibliography: Moldenke, *Alph. List Cit.* 2: 461 (1948) and 3: 829 & 832. 1949; Moldenke, *Phytologia* 18: 424. 1969.

ERIOCAULON PSEUDOQUINQUANGULARE Ruhl.

Additional synonymy: Eriocaulon pseude-quinquangulare Ruhl. apud Fyson, *Journ. Indian Bot.* 2: 320, sphalm. 1921.

Additional bibliography: Fyson, *Journ. Indian Bot.* 2: 320. 1921; Moldenke, *Phytologia* 18: 424—425. 1969; M. A. Rau, *Bull. Bot. Surv. India* 10, Suppl. 2: 84. 1969.

ERIOCAULON PULCHELLUM Körn.

Additional bibliography: Ruhl. in *Engl., Bot. Jahrb.* 27: 72 & 84. 1899; Moldenke, *Phytologia* 19: 88. 1969.

The Barter 778, distributed as E. pulchellum, is actually the type collection of E. togoënsis Moldenke.

ERIOCAULON PULVINATUM Van Royen

Additional bibliography: Moldenke, *Phytologia* 19: 88. 1969.

Although Van Royen (1959) cites the type of this species as "Brass 9997 in *Herb. Lugd. Bat.*", the collections seems to be cited more accurately as Brass & Meyer-Drees 9997, as is indicated by the label on the Britton Herbarium specimen. These collectors found the plant "massed in alpine bog turf". The species was confused by me previously with E. brevipedunculatum Merr.

Citations: MELANESTIA: NEW GUINEA: Dutch New Guinea: Brass 9231 (N), 9282 (N); Brass & Meyer-Drees 9997 (N—*isotype*).

ERIOCAULON PUSILLUM R. Br.

Additional & emended bibliography: R. Br., *Prodr. Fl. Nov. Holl.*, pr. 1, 1: 254—255 (1810) and pr. 2, [*Isis* 1819:] 48. 1819; Moldenke, *Phytologia* 18: 427—428. 1969.

ERIOCAULON PYGMAEUM Soland.

Additional & emended bibliography: R. Br., *Prodr. Fl. Nov. Holl.*, pr. 1, 1: 254 (1810) and pr. 2, [*Isis* 1819:] 48. 1819; Moldenke, *Phytologia* 19: 88—89. 1969.

ERIOCAULON QUINQUANGULARE L.

Additional synonymy: Eriocaulon quinquangulare var. argenteum (Mart.) Thwaites & Hook. f., *Enum. Pl. Zeyl.*, pr. 1, 341. 1864. Eriocaulon quinquangulare vera Fyson, *Journ. Indian Bot.* 2: 204. 1921.

Additional bibliography: Kuntze, Rev. Gen. Pl. 2: 746. 1891; Ruhl. in Engl., Bot. Jahrb. 27: 85. 1899; Moldenke, Alph. List Cit. 2: 461 (1948), 3: 879 (1949), and 4: 1128. 1949; Thwaites & Hook. f., Enum. Pl. Zeyl., pr. 2, 341. 1964; Datta & Majumdar, Bull. Bot. Soc. Bengal 20: 39. 1966; Rao & Kumari, Bull. Bot. Surv. India 9: 110. 1967; Sebastine & Vivekanathan, Bull. Bot. Surv. India 9: 183. 1967; Sebastine & Ellis, Bull. Bot. Surv. India 9: 199. 1967; Vajravelu, Joseph, & Chandr., Bull. Bot. Surv. India 10: 81. 1968; J. L. Ellis, Bull. Bot. Surv. India 10: 159. 1968; M. A. Rau, Bull. Bot. Surv. India 10, Suppl. 2: 84. 1969; Moldenke, Phytologia 19: 70 & 89--90 (1969) and 19: 234, 236, 237, 243--246, & 343. 1970.

Vajravelu & his associates (1968) cite J. Joseph 17861 from Kerala, India, as representing this species, while Ellis (1968) cites nos. 16859 & 22129 from Andhra Pradesh. Rao & Kumari (1967) cite no. 22490 from Andhra Pradesh, Sebastine & Ellis (1967) cite Ellis 11765 from Madras, and Sebastine & Vivekanathan (1967) cite their no. 17486.

ERIOCAULON RAVENELII Chapm.

Additional & emended synonymy: Eriocaulon ravenelli Chapm. ex Moldenke, Phytologia 3: 342, in syn. 1950. Eriocaulon ravenellii Chapm. ex Moldenke, Phytologia 3: 342, in syn. 1950. Eriocaulon ravinellii Chapm. ex Moldenke, Phytologia 3: 342, in syn. 1950. Eriocaulon revenellii Chapm., in herb.

Additional bibliography: Moldenke, Alph. List Cit. 1: 25, 176, & 295 (1946), 2: 459--461, 507, & 512 (1948), 3: 842, 942--944, & 946 (1949), and 4: 1118, 1192, & 1296. 1949; Moldenke, Phytologia 18: 436--437. 1969.

Tomlinson found this plant growing in wet marl in sawgrass marshes, flowering and fruiting in November. The Diener 180, distributed as E. ravenellii, is actually Lachnocaulon anceps (Walt.) Morong.

Additional citations: FLORIDA: Collier Co.: Tomlinson 27-11-62 A (Ft--286). Monroe Co.: Tomlinson 27-11-62 B (Ft--287, Ft--287, Ft--287).

ERIOCAULON REDACTUM Ruhl.

Additional bibliography: Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 50. 1930; Moldenke, Phytologia 18: 438 (1969) and 19: 246. 1970.

ERIOCAULON REGNELLII Moldenke

Additional bibliography: Moldenke, Phytologia 18: 438. 1969.

Additional citations: BRAZIL: Minas Gerais: Irwin, Maxwell, & Wasshausen 19687 (N).

ERIOCAULON REMOTUM H. Lecomte

Additional bibliography: Moldenke, Phytologia 18: 438--439 (1969) and 19: 35. 1969.

ERIOCAULON RICHARDI Körn.

Synonymy: Eriocaulon richardii Körn. apud Ruhl. in Engl., Bot. Jahrb. 27: 85, hyponym. 1899.

Bibliography: Schweinf., Beitr. Fl. Aethiop. 309. 1867; Ruhl. in Engl., Bot. Jahrb. 27: 85. 1899.

Nothing is known to me of this taxon except that it is supposed to grow in Abyssinia. A formal description has apparently never been published, and the name does not appear to be in the Index Kewensis nor any of its supplements. Ruhl. (1899) was also not able to place it satisfactorily. It is listed by Schweinfurth (1867), without description, based on Schweinfurth 3971 from Abyssinia. Schweinfurth 3971 is not cited by Ruhl. under either E. abyssinicum Hochst. nor E. schimperii Körn., the only species listed by him from Ethiopia in his monograph of the family (1903).

ERIOCAULON ROBINSONII Moldenke

Additional bibliography: Moldenke, Alph. List Cit. 2: 460 (1948), 3: 858 (1949), and 4: 1205. 1949; Moldenke, Phytologia 18: 439. 1969.

ERIOCAULON ROBUSTIUS (Maxim.) Mak.

Additional & emended bibliography: Maxim., Diagn. Pl. Nov. Asiat. 8: 25—27. 1893; Moldenke, Alph. List Cit. 2: 490. 1948; Moldenke, Phytologia 19: 90 (1969) and 19: 239, 244, 246, & 323. 1970.

Maximowicz (1893) distinguished his variety from typical E. alpestre by "Folia latiora (3—7 mm.) et numerosiora scapis 4—5-costatis parum breviora, capitula nonnihil majora 20—50-flora". He cites Keiske s.n., Maximowicz s.n., Ono s.n., Savatier 1361, and two collections each of Makino and of Siebold, apparently all to be regarded as cotypes.

ERIOCAULON ROBUSTO-BROWNIANUM Ruhl.

Additional bibliography: Moldenke, Phytologia 19: 90—91. 1969.

According to Fyson (1921) what is now known as E. robusto-brownianum was included by Hooker (1893) in what he regarded as E. nilagirensis Steud.

ERIOCAULON ROBUSTUM Steud.

Additional bibliography: Ruhl. in Engl., Bot. Jahrb. 27: 66. 1899; Moldenke, Phytologia 19: 91. 1969.

ERIOCAULON ROCKIANUM Hand.-Mazz.

Additional bibliography: Moldenke, Alph. List Cit. 3: 859. 1949; Moldenke, Phytologia 18: 446—447. 1969.

ERIOCAULON SCARIOSUM R. Br.

Emended synonymy: Eriocaulon smithii R. Br., Prodr. Fl. Nov. Holl., pr. 1, 1: 254. 1810.

Additional & emended bibliography: R. Br., Prodr. Fl. Nov. Holl.,

pr. 1, 1: 254 (1810) and pr. 2, [Isis 1819:] 47. 1819; Kunth, Enum. Fl. 3: 568--571. 1841; Moldenke, Phytologia 19: 86 & 91--94. 1969.

ERIOCAULON SCHIEDEANUM Körn.

Additional bibliography: Moldenke, Alph. List Cit. 1: 31 & 314 (1946), 2: 370, 461, & 476 (1948), and 3: 829--831. 1949; Moldenke, Phytologia 19: 94--95. 1969.

ERIOCAULON SCHIMPERI Körn.

Additional & emended synonymy: Eriocaulon schimperianum Körn. apud Schweinf., Beitr. Fl. Aethiop. 309, hyponym. 1867. Eriocaulon "schimperii 'Körn.' Ruhl." apud Ruhl. in Engl., Bot. Jahrb. 27: 71, 79, & 80. 1899.

Additional & emended bibliography: Schweinf., Beitr. Fl. Aethiop. 309. 1867; Ruhl. in Engl., Bot. Jahrb. 27: 71, 79, & 80. 1899; Moldenke, Alph. List Cit. 3: 664 & 718 (1949) and 4: 1189, 1192, & 1216. 1949; Hedberg, Symb. Bot. Upsal. 15 (1): 263. 1957; Moldenke, Phytologia 19: 95--97. 1969.

Schweinfurth (1867) cites Schweinfurth 3972 from Ethiopia as representing this species. It would appear, then, that Eriocaulon richardi Körn. was regarded by him as distinct from this taxon.

ERIOCAULON SCHIMPERI var. GIGAS Moldenke

Additional bibliography: Moldenke, Alph. List Cit. 4: 1216. 1949; Moldenke, Phytologia 19: 96--97. 1969.

ERIOCAULON SCHIPPPII Standl.

Additional bibliography: Moldenke, Alph. List Cit. 1: 324. 1946; Moldenke, Phytologia 19: 97--98. 1969.

ERIOCAULON SCHLECHTERI Ruhl.

Additional & emended bibliography: Ruhl. in Engl., Bot. Jahrb. 27: 70 & 78--79. 1899; Moldenke, Phytologia 19: 98. 1969.

ERIOCAULON SCLEROCEPHALUM Ruhl.

Additional bibliography: Moldenke, Alph. List Cit. 1: 64, 92, & 186 (1946) and 2: 648. 1948; Moldenke, Phytologia 19: 99--100 (1969) and 19: 249. 1970.

ERIOCAULON SEEMANNII Moldenke

Additional bibliography: Moldenke, Alph. List Cit. 3: 918 & 959 (1949) and 4: 1048 & 1141. 1949; Moldenke, Phytologia 19: 100--101. 1969.

ERIOCAULON SEPTANGULARE With.

Additional bibliography: N. L. Britton, Man., pr. 1, 237 (1901), pr. 2, 237 (1902), pr. 3, 237 (1905), and pr. 4, 237. 1907; Britton & Br., Illustr. Fl., ed. 2, pr. 1, 1: 454, fig. 1140 (1913) and 3: 575 & 625. 1913; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2,

15a: 39 & 49. 1930; Britton & Br., *Illustr. Fl.*, ed. 2, pr. 2, 1: 454, fig. 1140 (1936) and 3: 575 & 625 (1936) and pr. 3, 1: 454, fig. 1140 (1943) and 3: 575 & 625. 1943; Moldenke, *Alph. List Cit.* 1: 4, 6, 8, 11, 15, 18, 19, 21, 29--35, 38, 40--43, 46, 56, 59, 61, 63, 71, 82, 88, 90, 91, 94, 98, 99, 104, 107, 109, 111, 112, 115, 118, 122, 123, 129, 130, 139, 142, 143, 148, 149, 152, 153, 160, 163, 169, 174, 176, 177, 182, 192--194, 197, 199, 200, 204--206, 209, 212--214, 220, 224--226, 229, 235, 239, 242, 244, 245, 247--249, 255, 257, 262, 270, 271, 276--284, 287, 288, 290, & 292--296. 1946; Britton & Br., *Illustr. Fl.*, ed. 2, pr. 4, 1: 454, fig. 1140 (1947) and 3: 575 & 625. 1947; Moldenke, *Alph. List Cit.* 2: 404, 406, 412, 413, 449, 453, 455, 460, 461, 473, 476--478, 480, 481, 491--494, 496, 506, 507, 514, 524, 530, 536, 538, 555, 558, 568--570, 580, 581, 583, 585, 587, 609, 610, 614, 617, 630, 631, 634, 638, & 641 (1948), 3: 671, 679--700, 706, 707, 713, 719, 721, 722, 728, 738--740, 743--745, 750, 752--754, 760, 771--773, 783, 794, 800, 803, 806, 807, 811, 812, 823, 827, 828, 832, 842, 843, 852, 858, 870, 877, 878, 880, 890--892, 900, 911, 916, 926, 927, 931, 941, 948, 969, 971--973, 976, & 977 (1949), and 4: 986, 987, 997, 998, 1001, 1002, 1004, 1012, 1015, 1016, 1081, 1084, 1097--1099, 1111, 1112, 1118, 1119, 1121, 1123, 1125, 1127, 1135--1137, 1140, 1141, 1145, 1151, 1155, 1162, 1167--1169, 1173, 1176--1178, 1180, 1181, 1189, 1191, 1192, 1197--1199, 1203, 1204, 1209--1211, 1217, 1218, 1221--1223, 1225--1227, 1229, 1232, 1235, 1237, 1239, 1240, 1244, 1246, 1247, 1251, 1252, 1255, 1260, 1261, 1289, 1292, & 1294. 1949; Kapp, *How to Know Pollen* 92 & 236, fig. 182. 1969; Moldenke, *Phytologia* 19: 230--233. 1970.

ERIOCAULON SETACEUM L.

Additional & emended bibliography: Körn., *Linnaea* 27: 601. 1856; Benth., *Fl. Hongk.* 383. 1861; Thwaites & Hook. f., *Enum. Pl. Zeyl.*, pr. 1, 341. 1864; Körn. in *Miq.*, *Prolus. Fl. Iap.* 326. 1867; Benth. & Hook. f., *Gen. Pl.* 3 (2): 1021. 1883; Kuntze, *Rev. Gen. Pl.* 2: 746. 1891; Maxim., *Diagn. Pl. Nov. Asiat.* 8: 13--14. 1893; Ruhl. in *Engl.*, *Bot. Jahrb.* 27: 66. 1899; Ruhl. in *Engl. & Prantl.*, *Nat. Pflanzenfam.*, ed. 2, 15a: 49 & 50. 1930; Thwaites & Hook. f., *Enum. Pl. Zeyl.*, pr. 2, 341. 1964; Tingle, *Check List Hong Kong Pl.* 54. 1967; M. A. Rau, *Bull. Bot. Surv. India* 10, *Suppl.* 2: 84. 1969; Moldenke, *Phytologia* 19: 233--237, 243, & 244. 1970.

Tingle (1967) records this species from Hongkong where, he says, it is known as the "bristle-leaved pipewort". This is most probably a case of misidentification.

ERIOCAULON SEXANGULARE L.

Additional & emended synonymy: *Eriocaulon cationense* Hook. & Arn. apud Maxim., *Diagn. Pl. Nov. Asiat.* 8: 27, sphalm. 1893. *Eriocaulon truncatum* Harms ex Moldenke, *Résumé* 293, in syn. 1959 [not *E. truncatum* Buch.-Ham., 1832, nor "Buch.-Ham. ex Mart.", 1968, nor "Ham. ex Mart.", 1939, nor Mart., 1860, nor Wall., 1946, nor Wight, 1970].

Additional & emended bibliography: Thwaites & Hook. f., Enum. Pl. Zeyl., pr. 1, 341. 1864; Schweinf., Beitr. Fl. Aethiop. 295 & 309. 1867; Körn. in Miq., Prol. Fl. Iap. 326. 1867; Miq., Cat. Mus. Lugd. Bat. 109. 1870; Maxim., Diagn. Pl. Nov. Asiat. 8: 5, 7, 10-11, 15, & 27-28. 1893; Ruhl. in Engl., Bot. Jahrb. 27: 66, 67, 72, 73, & 83. 1899; H. Lecomte, Not. Syst. 2: 215. 1912; Fyson, Journ. Indian Bot. 2: 318 & 320, pl. 39 & 40. 1921; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 49 & 50. 1930; Moldenke, Alph. List Cit. 2: 409, 460, & 461 (1946), 3: 719, 775, 879, & 957 (1949), and 4: 1129, 1176, & 1205. 1949; Thwaites & Hook. f., Enum. Pl. Zeyl., pr. 2, 341. 1964; Tingle, Check List Hong Kong Pl. 54. 1967; Moldenke, Phytologia 19: 234, 236, 238-248, 250, 325, 327, 339, & 350. 1970.

Taam found this plant "abundant on gentle slope", in sandy soil by a spring on Hongkong island. Tingle (1967) records the common name "Wallich's pipewort" for the species in Hongkong. Thwaites & Hooker (1864) regarded E. atratum Körn, as in part a synonym of E. sexangulare and in part a synonym of E. truncatum Hamilt.

The H. Hallier 1172, distributed as E. sexangulare, is in part this species and in part E. truncatum Hamilt., while Wallich 6067 is E. wightianum Mart.

Eriocaulon australe R. Br. is apparently very closely related to and may even be conspecific with E. sexangulare. The habit is almost identical and both have trimerous florets. Ruhland, however, says that in E. sexangulare "Flores partim modo trimeri, saepe \pm reducti", while in E. australe "Flores normaliter, staminibus raro abortu oligomeris exceptis, evoluti. Perigonia semper homioia [3-] mera".

Maximowicz (1893) obviously applied the name, E. sexangulare, to the plant which we now know as E. cinereum R. Br., while calling the true E. sexangulare by Martius' binomial, E. wallichianum. Under the latter name he cites "Ganditrand" [=Gaudichaud] 121 from Macao, Hance s.n. from Canton, Wright s.n. from Hongkong, Thwaites s.n. from Ceylon, Wight s.n. and others from Deccan, Stocks s.n. from Malabar, and Metz s.n. from Canara, India. He notes "Cum praecedente [E. australe R. Br] a reliquis nostratibus floribus utriusque sexus ancipitibus (phyllis 2 alatis) distat."

Additional & emended citations: HONGKONG: Taam 1547 (N). MALAYA: Malacca: Cuming 2328 (E, Mu--345).

ERIOCAULON SIGMOIDEUM C. Wright

Additional & emended bibliography: Sauv., Anal. Acad. Ci. Habana 8: 48-49. 1871; Sauv., Fl. Cub. 163. 1871; Moldenke, Alph. List Cit. 1: 24 (1946), 2: 476 (1948), and 4: 1144 & 1304. 1949; Moldenke, Phytologia 19: 248-249. 1970.

ERIOCAULON SIKOKIANUM Maxim.

Additional & emended bibliography: Maxim., Diagn. Pl. Nov. Asiat.

8: 6--7, 16--17, & 24. 1893; Moldenke, *Alph. List Cit.* 2: 461 & 490 (1948) and 4: 998. 1949; Moldenke, *Phytologia* 19: 246 & 249--250. 1970.

Maximowicz (1893) cites the type and apparently only specimen of this species known to him as "Sikoku: principatu Tosa ad Saka-wa, Octobri '84 fl. frf. spec. 1 misit c.n. jap. ō inunohige T. Makino". He further comments that "A proximo E. Miqueliano statim in olucro discum parum superante distinguitur".

ERIOCAULON SIKOKIANUM var. *MATSUMURAE* (Nakai) Satake

Additional bibliography: Moldenke, *Résumé Suppl.* 12: 8 & 9. 1965; Moldenke, *Phytologia* 19: 250. 1970.

Illustrations: Satake, *Bull. Tokyo Sci. Mus.* 4: [Rev. Jap. *Erioc.*] pl. 5, fig. 9. 1940.

The type of this variety was collected by J. Nikai (no. 1093) at Ikeda-mura, in the province of Bittyu, Honshu, Japan, in October, 1903, and is deposited in the herbarium of Tokyo University. Common names recorded for the plant are "kibi-oinunohige" and "matumura-inunohige". Satake (1940) cites Nikai 1093 and Yosino 34324 & 49462 from Honshu.

Citations: WESTERN PACIFIC ISLANDS: JAPAN: Honshu: Furuse s.n. [6 Oct. 1955] (S, S).

ERIOCAULON SILICICOLA Ridl.

Synonymy: *Eriocaulon silicicolum* Ridl., *Journ. Fed. Malay States Mus.* 6: 191. 1915.

Bibliography: H. N. Ridl., *Journ. Fed. Malay States Mus.* 6: 191--192. 1915; Prain, *Ind. Kew. Suppl.* 5, pr. 1, 97 (1921) and pr. 2, 97. 1960; Moldenke, *Résumé Suppl.* 17: 3. 1968.

Because of the unavailability of the original description of this species in many libraries, it may be worthwhile to reproduce it herewith: "265. *Eriocaulon Hookerianum*, Stapf. *Eriocaulon macrophyllum*, Ridl. op. cit. p. 332. Dry spots on Gunong Riam, 6,000 feet altitude, and on summit of Gunong Tahan, 7,100 feet. This exactly resembles the type-plants of Kinabalu collected by Haviland. I find the petals of the male flower very unequal, one being considerably longer than the other. In the lower-lying and damper parts of the Padang there is another plant which differs from this species in having a less distinct stem and thin long flaccid leaves, but of which the flowers bear a very close resemblance to those of *E. Hookerianum*, and it is possible that it is a lowland form of that species. In the previous paper I named this *E. macrophyllum*, Ruhl., only known from a Javan specimen collected by Warburg, but closely resembling a Javanese plant collected by Horsfield and now in the British Museum. (It is always regrettable that so many authors of the 'Pflanzenreich' volumes appear to have omitted to inspect the largest and most important herbaria of Kew and the British Museum.) I think, however, this plant is probably not the plant intended by Ruhland for his *macrophyllum*, and I cannot find any description to exactly suit this lowland

species. I will describe it herewith, and give it a name: — Stem very short, herbaceous, covered by the bases of the leaves. Leaves linear, flaccid, herbaceous, acute, 5 to 8 inches long, 1/8 to 1/6 inch wide, with a few sparse hairs soon disappearing. Scapes 1 to 3 in a tuft, slender, erect, 12—18 inches tall, glabrous, ribbed. Spathe at base tubular, 4 inches long, with lanceolate elongate limb. Capitulum 1/4 to nearly 1/2 inch across. Involucral bracts oblong, rounded at the tip, pubescent. Male flowers: bracts cuneate, apex rounded, pale translucent, apex thickly covered with white hairs. Perianth stalked. Sepals oblong, cuneate, tipped with white hairs and black-dotted, connate for most of their length. Corolla hardly longer; lobes 3, very unequal, one twice as long as the other two, all crested with white hairs. Stamens with pale whitish filaments; anthers rather large, black, little longer than shorter perianth-lobes. Female flower: sepals as in the male. Petals free to base, linear, with long white hairs all over. Capsule trilobed, globose. Seed oblong, obtuse at both ends. Style elongate, slender. In damp spots on the Padang. Certainly near E. macrophyllum, Ruhl., from description, but the unequal male petals are those of E. Hookerianum, and the leaves are always shorter than the culm."

The species is apparently known only from the type collection from Pahang, Malaya. The original spelling of the specific epithet was corrected by Prain (1921) because the adjective employed by Ridley is indeclinable.

ERIOCAULON SILVEIRAE Moldenke

Synonymy: Eriocaulon longepedunculatum Alv. Silv., Fl. Mont. 1: 15--16 & 398. 1928 [not E. longepedunculatum H. Lecomte, 1946, nor E. longipedunculatum H. Lecomte, 1913].

Bibliography: Alv. Silv., Fl. Mont. 1: 15--16, 398, & [I]. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 105. 1938; Moldenke, Known Geogr. Distrib. Erioc. 8, 36, 40, 61, & 62. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 77 & 206. 1949; E. J. Salisb., Ind. Kew. Suppl. 11: 88. 1953; Moldenke, Résumé 89, 289, & 483. 1959; Moldenke, Phytologia 18: 270. 1969.

Silveira (1928) cites only the type collection, A. Silveira 723, from Minas Gerais, Brazil. The species is named in his honor.

ERIOCAULON SINII Ruhl.

Bibliography: Ruhl., Notizbl. Bot. Gart. Berlin 10: 1041--1042 & 1060. 1930; A. W. Hill, Ind. Kew. Suppl. 8: 87. 1933; Moldenke, Known Geogr. Distrib. Erioc. 25 & 40. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 132 & 206. 1949; Moldenke, Résumé 170 & 483. 1959; Moldenke, Résumé Suppl. 3: 18 & 19. 1962; Moldenke, Phytologia 17: 454 (1968) and 19: 72. 1969.

This species has been collected in open grassy places. The Liang 66137 cited below is a mixture with E. kiusionum Maxim. Material of E. sinii has been misidentified and distributed in herbaria as E. buergerianum Körn.

Citations: CHINA: Kwangtung: Tak & Chow 2611 [Herb. Canton Chr. Coll. 14472] (Ca--319187). CHINESE COASTAL ISLANDS: Hainan: Liang 66137, in part (Go); W. T. Tsang 535 [Herb. Lingnan Univ. 16034] (N, S).

ERIOCAULON SMITINANDI Moldenke

Synonymy: Eriocaulon smitinandii Moldenke apud G. Taylor, Ind. Kew. Suppl. 13: 52. 1966.

Bibliography: Moldenke, *Phytologia* 7: 87. 1959; Moldenke, *Résumé Suppl. 1*: 13 & 25. 1959; Moldenke, *Biol. Abstr.* 35: 1688. 1960; Hocking, *Excerpt. Bot. A.4*: 592. 1962; G. Taylor, Ind. Kew. Suppl. 13: 52. 1966; Moldenke, *Résumé Suppl. 17*: 11. 1968.

This plant has been described by Smitinand as "gregarious" in wet localities in paddy fields and "very common" in wet localities of savannas, with white flowers, blooming in October and November, at 100 meters altitude.

Citations: THAILAND: Smitinand 3603 [Herb. Royal Forest Dept. 18239] (Sm), 3679 [Herb. Royal Forest Dept. 15468] (Z--type).

ERIOCAULON SOLLYANUM Royle

Synonymy: Eriocaulon trilobum Buch.-Hamilt. ex Wall., Numer. List 207, hyponym. 1832; Körn., *Linnaea* 27: 645. 1856. Eriocaulon quinqueangulare Mart. ex Körn., *Linnaea* 27: 645, in syn. 1856 [not E. quinqueangulare Bojer, 1964, nor Heyne, 1832, nor L., 1743, nor Wall., 1858, nor Wight, 1832]. Eriocaulon subulatum Bojer ex Körn., *Linnaea* 27: 645, in syn. 1856. Eriocaulon quinquelobum Wall. ex Hook. f., *Fl. Brit. Ind.* 6: 583, in syn. 1893. Eriocaulon trilobum Hamilt. ex Prain, *Bengal Pl.*, ed. 1, 1127. 1903. Eriocaulon solleyanum Royle ex Haines, *Bot. Bihar & Orissa* 6: 1066, in syn. 1924. Eriocaulon trilobum Körn. apud Sprague, *Kew Bull. Misc. Inf.* 1933: 385. 1933. Eriocaulon subulatum Bojer apud Moldenke, *Résumé* 293, in syn. 1959 [not E. subulatum N. E. Br., 1901]. Eriocaulon quinqueangulare Willd. ex Moldenke, *Résumé Suppl. 1*: 18, in syn. 1959. Eriocaulon heterolepis & genuinum Körn. ex Moldenke, *Résumé Suppl. 1*: 17, in syn. 1959. Eriocaulon trilobus Buch.-Ham. ex Moldenke, *Résumé Suppl. 3*: 32, in syn. 1962. Eriocaulon trilobum "Buch.-Ham. ex Körn." apud Backer & Bakh., *Fl. Java* 3: 26, in syn. 1968. Eriocaulon trilobium Buch.-Ham., in herb.

Bibliography: Wall., Numer. List 207. 1832; Royle, *Illustr. Bot. Himal.* 409, pl. 97, fig. 1 a, b, d--f, & i. 1840; Körn., *Linnaea* 27: 645. 1856; C. Müll. in *Walp.*, *Ann.* 5: 926, 937, & 940 (1860) and 6: 1171. 1861; Thwaites & Hook. f., *Enum. Pl. Zeyl.*, pr. 1, 341. 1864; Körn. in *Miq.*, *Ann. Mus. Bot. Lugd.* 3: 163. 1867; Körn. in *Miq.*, *Prol. Fl. Iap.* 327. 1867; Hieron. in *Engl. & Prantl, Nat. Pflanzenfam.*, ed. 1, 2 (4): 27. 1888; Kuntze, *Rev. Gen. Pl.* 2: 746. 1891; Jacks. in *Hook. f. & Jacks., Ind. Kew.*, pr. 1, 1: 879. 1893; Maxim., *Diagn. Pl. Nov. Asiat.* 8: 15. 1893; Hook. f., *Fl. Brit.*

Ind. 6: 583. 1893; Ruhl. in Engl., Bot. Jahrb. 27: 66, 67, 71, & 81. 1899; Prain, Bengal Fl., ed. 1, 1127. 1903; Ruhl. in Engl., Pflanzenreich 13 (h-30): 62, 74, 78, & 287. 1903; Fyson, Fl. Nilg. & Puln. Hill-tops 1: 431. 1915; Fyson, Journ. Indian Bot. 2: 150, 206, 260, & 320, pl. 10. 1921; Haines, Bot. Bihar & Orissa 6: 1066 & 1068. 1924; Duthie, Fl. Upper Ganget. Plain 3: 318 & 319. 1929; Stapf, Ind. Lond. 3: 91. 1930; Sprague, Kew Bull. Misc. Inf. 1933: 385. 1933; Moldenke, Known Geogr. Distrib. Erioc. 21--25, 27, 40, & 41. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 879. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 117, 123, 125, 127, 130, 134, & 206. 1949; Moldenke, Phytologia 3: 398--399. 1950; Moldenke in Humbert, Fl. Madag. 36: 17--18. 1955; Santapau & Raizada, Ind. For. Rec. 4 (6): 167. 1955; Moldenke, Résumé 145, 156, 159, 162, 167, 173, 291, 293, 415, & 483. 1959; Moldenke, Résumé Suppl. 1: 11, 17, & 18. 1959; Van Royen, Blumea 10: 135. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 879. 1960; D. N. F. Kiehl, Blumea 10: 657. 1960; Moldenke, Résumé Suppl. 3: 17, 18, & 32 (1962) and 4: 7. 1962; G. L. Shah, Bull. Bot. Surv. India 4: 237. 1962; Prain, Bengal Fl., ed. 2, 2: 848. 1963; Moldenke, Résumé Suppl. 6: 8. 1963; Bhattacharyya, Bull. Bot. Surv. India 6: 208. 1964; Thwaites & Hook. f., Enum. Pl. Zeyl., pr. 2, 341. 1964; Thanikaimoni, Pollen & Spores 7: 186. 1965; Moldenke, Résumé Suppl. 12: 8. 1965; Datta & Majumdar, Bull. Bot. Soc. Bengal 20: 39. 1966; Moldenke, Résumé Suppl. 15: 20. 1967; Santapau, Bull. Bot. Surv. India 8: 48. 1967; Backer & Bakh., Fl. Java 3: 25--26. 1968; Moldenke, Résumé Suppl. 17: 11. 1968; Moldenke, Phytologia 17: 463 & 489 (1968), 18: 102, 186, 264, 274, 302, 328, 348, 362, 429, & 433--435 (1969), and 19: 24, 36, 46, & 78. 1969; M. A. Rau, Bull. Bot. Surv. India 10, Suppl. 2: 84. 1969; Moldenke, Phytologia 19: 232 & 346. 1970.

Illustrations: Royle, Illustr. Bot. Himal. pl. 97, fig. 1 a, b, d--f, & i [in color]. 1840; Fyson, Journ. Indian Bot. 2: pl. 10. 1921.

Herb; roots fibrous, fasciculate, spongy, glabrous, white; stems very short; leaves erect-cespitose, linear, slightly attenuate from the base to the apex, flat, not drying red, membranous, 1.3--9.5 [usually 3--9] cm. long, 1.6--3 mm. wide at the midpoint, the apex itself rather obtusish or obtuse, pellucid, glabrous, fenestrately 9--11-veined, the veins longitudinal and subequally strong; peduncles aggregate, up to 16 per plant, erect, 5--40 cm. long, herbaceous, 5- or 6-costate, twisted, glabrous; sheaths rather loose or lax, obliquely split, subpellucid, 1.4--6 cm. long, fenestrately striatulate or venose, glabrous, the mouth subentire, the blade thin-membranous at the apex; heads finally sibglobose, nigrescent-olivaceous, 3--5 mm. wide, very shortly and sparsely white-villosulous; involucreal bractlets 5 or more, oblong or spatulate-obovate, membranous, bright-green or pale greenish-gray, finally nigrescent, at first equaling the disk, at least a few finally conspicuously reflexed and shorter than the disk, obtuse at the apex, glabrous; receptacular bractlets narrowly obovate-cuneate or lanceolate, olivaceous or nigrescent, drying dirty-black, equaling

the florets, membranous, rather obtusish or acutish at the apex, short-pilose or puberulent with scattered hairs toward the apex; receptacle glabrous or pilose; florets subsessile; staminate florets: sepals 3, spathaceous-connate to the middle, free at the apex, oblong, anteriorly split, olivaceous, obtuse or subtruncate at the apex, short-pilose or puberulent with a few scattered hairs toward the apex; petals connate into a solid tube which is 3-lobed at its apex, the lobes small, ciliate, with a dark gland below the apex within, the anterior one larger; stamens 6, the 3 opposite the corolla-lobes scarcely larger; anthers rounded, black; pistil-rudiment in the center, dark, effete, glandulose, 3-parted; pistillate florets: sepals 3, separate, oblong, subequal, olivaceous, acute or obtusish at the apex, keeled, narrowly spongy-alate on the back, short-pilose with scattered hairs at the apex; petals 3, inserted at the same level as the sepals or slightly higher, separate, linear-spatulate, whitish, obtuse at the apex, short-puberulent within, with a dark gland below the apex on the inner surface; ovary sessile or short-stipitate, 3-celled; style equalling the ovary in length; stigmas 3, filiform; seeds ovate, yellowish-fuscescent, densely covered with hair-like thickened hyaline cells in parietal transverse lines.

It is worth noting here that the E. quinquangulare L., referred to in the synonymy above, is a valid species, with the homonym accredited to Wight as a synonym, while that accredited to Heyne is E. cristatum Mart., that credited to Wallich is E. nepalense Prescott, and that credited to Bojer is still not placed satisfactorily, and the E. subulatum N. E. Br. is also a valid species. Eriocaulon sollyanum var. sumatranum Van Royen is regarded by me as a synonym of E. merrillii Ruhl.; E. heterolepis α genuinum Körn. appears to be based on Stocks, Law, &c. s.n. [Malabar, Concan, &c.] in the Berlin herbarium; E. quinquangulare Willd. is based on König s.n. [India orientalis], also in the Berlin herbarium, E. 5-angulare var. erythropodum Miq. is based on Hohenacker 131 in the Munich herbarium, and E. 5-angulare var. pusillum Körn. is based on König s.n. [Trankenbar], also at Munich. Stapf (1930) erroneously dates the Royle (1840) plate as "1839".

Fyson (1921) describes E. trilobum Hamilt. as follows: "Habit of E. quinquangulare L., but the heads as a rule smaller, 1/8 -- 1/6 in diam., darker, and the involucre bracts more conspicuously reflexed. Leaves not drying red.....N.W. Himalayas; Kumaon; Dharmasala; Bengal in rice fields (Wallich). This species exactly resembles E. Dianae, var. triloboides in the Bombay Presidency, except in the reduction in the latter of one female sepal. I am however uncertain of the identification of the sheets in the Calcutta Herbarium, for Koerniche describes the female sepals as 'carinatae, dorso anguste spongioso alatae', which they are not in these plants, yet there does not appear to be any other plant from Bengal to answer to the rest of the description." Under his E. dianae var. triloboides (now regarded as a synonym of E. collinum

Hook. f.) he says "Capitula nigra aut nigrescentia globosa..... Khandala to Wynaad. Leaves as in var. a [=typica]. Heads globose, dark almost black, distinguished only by the third female sepal being linear from E. trilobum Ham. This variety has in consequence frequently been identified as that species. See p. 139, fig. 3, which is of this plant, but wrongly named E. trilobum on p. 150, also see p. 206."

The species has been recorded from Zanzibar and Japan in addition to the countries listed in the citations below.

Backer & Bakhuizen van den Brink (1968) describe the plant as follows: "All leaves in a radical rosette. Terrestrials. Interfloral bracts in their upper halves or on their tops with numerous short white hairs. Involucral bracts, peduncles and leaves glabrous; heads less than 8 mm. across. Leaves at best 10 cm. long, often much less. Heads globose-oblate, 4--7 mm. across, blackish grey; interfloral bracts very dark-coloured, with a triangular, rather acute top; apical hairs short but not very minute; involucral bracts of old heads often reflexed and more or less concealed by the flowers; ♂ sepals 3, vaulted, connate into a unilaterally cleft sheath with a rounded, dark-coloured, short-hairy top; petals 3 (1 of them much the largest), all with a gland below the top; anthers 6, dark-coloured; ♀: sepals 3, pubescent, 2 of them navicular with a strongly keeled-winged back, the 3rd much narrower and less strongly vaulted; petals 3, with a gland below the top; style 3-fid. Outermost involucral bract oval-obovate, broadly rounded; receptacle densely villous. Leaves 3--10 cm. long. 0.07--0.35; I--XII; W. C. E., local; 1500--2000; swamps; locally sometimes numerous (E. trilobum Buch.-Ham. ex Koern.)."

This plant has been found by collectors in marshy waterlogged soil, marshy pastures, moist soil near rivers, open moist or marshy ground, riverbeds, and grassy rocky fields, on rocky ground and even on rocks in midstream, at altitudes of 1500 to 3000 meters, flowering and fruiting in every month of the year, although Datta & Majumdar (1966) aver that it flowers only from September to November. Bhattacharyya (1964) describes it as "occasional in marshy places"; Prain (1903) calls it an "herb of rice-fields and wet places....in all the provinces" of Bengal; Santapau & Raizada (1955) refer to it as "Another rare plant; seen only in moist ground in the river bed at Sasan" in Saurashtra. In Bombay, according to Santapau, it may be "locally abundant, but rare on plateau", "very rare, only one small patch seen in marshy ground", "not abundant among grasses in rocky ground", or "very common and abundant in grass fields", "some growing among grasses and other low herbs, others in almost bare ground of empty pools, rarely in flower". This same distinguished collector tells us that in Orissa it is "rare in moist cultivated fields", "common but not abundant in moist soil", or "masses in flower in rice fields".

The Sørensen, Larsen, & Hansen 5294 specimen; cited below, is immature. Of Santapau 16498 the collector notes "probably more than one species, in moist soil of river bed" in Saurashtra. Koelz

19398 is a mixture with E. cinereum R. Br., E. luzulaefolium Mart., and E. oryzetorum Mart.; E. Schmid 827 is a mixture with E. leucomelas Steud.; and Wight 2367F appears to be a mixture with E. quinquangulare L. Fyson (1915) notes that "Perhaps Schmidt left hand plant on sheet marked E. trilobum from Kaity, etc., in cover of E. collinum at Kew" is actually E. christopheri Fyson. Wallich (1832) regarded E. trilobum Hamilt. as a synonym of E. quinquangulare L. Jackson (1893) dates the Körnische synonyms as "1854", but they were not actually published until 1856.

Material has been misidentified and distributed in herbaria under such names as E. dianae var. longibracteatum Fyson, E. erythropodum Miq., E. gracile Mart., E. heterolepis Steud., E. quinquangulare L., E. septangulare With., E. sieboldianum Sieb. & Zucc., E. truncatum Hamilt., E. zambesiense Ruhl., E. 5-angulare var. pusillum Körn., Eleocharis sp., and even Eragrostis sp.

On the other hand, the Kjellberg s.n. [Papandajan], Kuntze 5686, and Van Steenis 4298, distributed as E. sollyanum, are all actually E. hookerianum Stapf, Wight 2856 is E. leucomelas Steud., and Heyne 12, G. Thomson s.n. [Maisor & Carnatic], and Wight 16 & 2367 are E. quinquangulare L.

Additional citations: MADAGASCAR: Bojer 79 (P). PAKISTAN: East Bengal: W. Griffith 5586 (C); F. Hamilton 23 (Br); Herb. Schreber 1791 (B); König s.n. [Selampur] (Mu--259); S. Kurz s.n. [Bengal] (Mu--315); Wallich 6072b (B). INDIA: Bombay: Bole 1538 (Xa); Ezekiel 30361 (N, Xa); R. R. Fernandez 1892 (Xa), R.298 (Xa), R.1160 (Xa), R.2110 (Xa), R.2110a (Xa); Hohenacker 131c (Ut-312); N. A. Isam 1171 (Xa); Kapada & Fernandez s.n. [20th Oct. 1954] (Xa); Mrs. Lisboa s.n. (N, Xa); Patel 1 (Lw); Santapau 10829 (Xa), 10905 (Xa), 10907 (Xa), 11562 (Xa), 11687 (Xa), 11691 (Xa), 13028 (Xa), 13950 [2] (Xa), 14966 (Xa), 15991 (Xa), 18747 (Xa), 18965 (Xa), 18966 (Xa), 19277 (Xa), 19278 (Xa), 19702 (Xa), 19703 (Xa), 19786 (Xa), 19787 (Xa), 21103 (Xa), 21169 (Xa); L. J. Sedgwick 701h (Xa), 27749 (Xa); Stocks, Law, &c. s.n. [Malabar, Concan, &c.] (B, Br, Mu--227, S). Kashmir: J. R. Drummond 15053 (Ca--246494). Kerala: Hohenacker 131 (Mu--228). Khasi States: Schlagintweit 188 (S). Madras: E. K. Janaki 737 (Mi); König s.n. [Trankenbar] (Mu--229); Macé s.n. (B); Saulière 71 (Ca--235475); B. Schmid 827, in part (B). Mysore: S. N. Ramaswamy 4 (Rf). Orissa: Santapau 21400 (Xa), 21429 (Xa), 21450 (Xa); S. K. Wagh 4705 (Xa), 4720 (Xa), 4728 (Xa). Saurashtra: Santapau 16498 (Xa, Xa, Z). Surguja: Koelz 19398, in part (Mi, N). Travancore: E. W. Erlanson 5140 (Mi). West Bengal: Bennett 1014 (Ac). State undetermined: F. Hamilton s.n. [Botanical Garden, 10 Jan. 1819] (Br); Klein 85 (B); König s.n. [India orientalis] (B); Patel s.n. [Igatpuri, October 20th, 1882] (Xa); Sonnerat s.n. [India orienta-

lis] (B); T. Thomson s.n. [Plan. Ganget. Inf.] (B, M, Mu—257, S); Wallich 6072 [India orientalis] (Mu—258); R. Wight 2367 (N), 2367F, in part (Ca—184359). CEYLON: Walker 14 (B). THAILAND: Sørensen, Larsen, & Hansen 5294 (S). INDOCHINA: Laos: Pételot 8972 (N), 8973 (N). CHINA: Fukien: Chang & Metcalf 163 (Ca—249084). Yunnan: G. Forrest 11773 (Ca—231222). LOCALITY OF COLLECTION UNDETERMINED: Herb. Link s.n. (B); Herb. Martius s.n. (Br); Herb. Mus. Paris. s.n. [Cayenne?] (P); Herb. Schreber s.n. (Mu—223); Herb. Swartz 16 (B). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicker (B).

ERIOCAULON SONDERIANUM Körn.

Bibliography: Körn., Linnaea 27: 669. 1856; C. Müll. in Walp., Ann. 5: 926 & 943—944 (1860) and 6: 1171. 1861; Rendle, Cat. Afr. Pl. Welw. 2 (1): 99. 1899; Ruhl. in Engl., Bot. Jahrb. 27: 71 & 81. 1899; Ruhl. in Engl., Pflanzenreich 13 (4-30): 62, 75, & 287. 1903; H. Lecomte, Bull. Soc. Bot. France 55: 644 & 648. 1909; Arwidsson, Bot. Notiser 1934: 83. 1934; J. Hutchinson, Botanist in South. Afr. 406. 1946; Moldenke, Known Geogr. Distrib. Erioc. 22, 34, & 40. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 120, 122, & 206. 1949; Moldenke, Phytologia 3: 399. 1950; Moldenke, Résumé 149, 153, 292, & 483. 1959; Moldenke, Résumé Suppl. 3: 16. 1962; R. H. Compton, Journ. S. Afr. Bot. Suppl. 6: 19 & 33. 1966; Moldenke, Résumé Suppl. 16: 8. 1968.

Collectors have described this plant as a small, perennial, localized herb, often forming tufts, with small, woolly, snow-white or gray-white-and-black heads on erect scapes 2--12 inches tall from basal rosettes of somewhat fleshy leaves. It has been found growing in very wet or in intermittent wet and dry soil, at altitudes of 3000 to 6700 feet, flowering and fruiting from October to December. Compton (1966) refers to it as "grass-like in upland swamps" in Swaziland, Killick & Strey found it "locally common in vlei or summits" in Transvaal, while Deverish tells us that it is found "in poor sour soil, sometimes in running or standing water". Hutchinson (1946) cites his no. 2794. Rendle (1899) says that E. lacteum Rendle is closely related to this species. The initial letter of its specific epithet is often up-percased. Jackson (1893) dates Körnicker's original publication as "1854", but the pages here involved were not issued until 1856.

Citations: SOUTH AFRICA: Orange Free State: Flanagan 1863 (S). Transvaal: Burke s.n. [Macalis Berg, Nov.] (B, Z); Deverish 733 (Mu); Killick & Strey 2723 (Mu); Merxmüller 321 (Mu); Rehm s.n. [15.10.1949] (Mu); Repton 5770 (Mu); Scheepers 707 (Mu); Zeyher 1731 (S--isotype).

ERIOCAULON SOUCHERETI Moldenke

Bibliography: Moldenke, Phytologia 4: 290—291. 1953; Moldenke, Biol. Abstr. 27: 3121. 1953; G. Taylor, Ind. Kew. Suppl. 12: 55. 1959; Moldenke, Résumé 176 & 483. 1959; Moldenke, Résumé Suppl. 6:

8. 1963; Moldenke, *Phytologia* 18: 363. 1969.

Material of this species has been misidentified and distributed in herbaria as *E. oryzetorum* Mart. and *E. truncatum* Hamilt.

Citations: THAILAND: Lindhard 20 (Cp); Sørensen, Larsen, & Hansen 5295 (Cp), 6473 (Z). INDOCHINA: Annam: Souchère 3 (N-type), 27 (N).

ERIOCAULON SPARGANIOIDES Bong.

Synonymy: *Eriocaulon sparganoides* Bong. apud C. Müll. in Walp., Ann. 6: 1171, sphalm. 1861.

Bibliography: Bong. *Mém. Acad. Sci. Sr. Pétersb.*, sér. 6, 1: 637, pl. 68. 1831; Kunth, *Enum. Pl.* 3: 579—580. 1841; C. Müll. in Walp., Ann. 5: 931 (1860) and 6: 1161. 1861; Körn. in Mart., *Fl. Bras.* 3 (1): 499—500. 1863; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 1: 879. 1893; Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 117 & 287. 1903; Moldenke, *Known Geogr. Distrib. Erioc.* 8 & 40. 1946; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 2, 1: 879. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 77 & 206. 1949; Moldenke, *Résumé* 89 & 483. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 3, 1: 879, 1960.

Illustrations: Bong., *Mém. Acad. Sci. St. Pétersb.*, sér. 6, 1: pl. 68. 1831.

The original description of this plant, as given by Kunth (1841), is "Acaule; foliis erectis, lineari-lanceolatis, obtusiusculis, reticulatis, glabris; pedunculis ad apicem subpubescentibus; vaginis elongatis, glabris". It is said to be a native of Brazil, no specific locality being mentioned. The plate "68" referred to in the original description was never published, according to Kunth. The initial letter of the specific epithet is underlined by Kunth.

ERIOCAULON SPECTABILE F. Muell.

Bibliography: F. Muell., *Fragm.* 1: 95. 1859; Benth., *Fl. Austral.* 7: 191, 196—197, & 792. 1878; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 1: 879. 1893; Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 33, 39, & 287. 1903; F. M. Bailey, *Compreh. Cat. Queensl. Pl.* 584. 1913; Moldenke, *Known Geogr. Distrib. Erioc.* 40 & 61. 1946; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 2, 1: 879. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 153 & 206. 1949; Moldenke, *Résumé* 209 & 483. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 3, 1: 879. 1960.

ERIOCAULON SPHAGNICOLA Ohwi

Synonymy: *Eriocaulon sphagnicolum* Ohwi apud Satake in Nakai & Honda, *Nov. Fl. Jap.* 6: 13, 16, 81, & 87, fig. 30. 1940.

Bibliography: Ohwi, *Bot. Mag. Tokyo* 45: 196 & 389. 1931; A. W. Hill, *Ind. Kew. Suppl.* 9: 105. 1938; Satake in Nakai & Honda, *Nov. Fl. Jap.* 6: 13, 64, 81, & 87, fig. 30. 1940; Satake, *Bull. Tokyo Sci. Mus.* 4: [Rev. *Jap. Erioc.*] 53, fig. 17. 1940; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 133 & 206. 1949; Moldenke, *Résumé* 171, 418, & 483. 1959.